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Sandia National Laboratories, New Mexico (SNL/NM)

Environmental Restoration

A Department of Energy Environmental Cleanup Program

Quarterly Report

December 1995 - February 1996

QUARTERLY REPORT

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SANDIA NATIONAL LABORATORIES, NEW MEXICO (SNL/NM)

ENVIRONMENTAL RESTORATION PROJECT

DOE ALBUQUERQUE OPERATIONS OFFICE/KIRTLAND AREA OFFICE
CONTRACTOR: SANDIA CORPORATION
PROGRAM MANAGER: WARREN COX
NUMBER OF POTENTIAL RELEASE SITES SUBJECT TO THIS PERMIT: 155
SUSPECT WASTE: RADIONUCLIDES, METALS, ORGANICS, EXPLOSIVES

1.0 Introduction

The technical status of each ongoing activity in the Environmental Restoration (ER) Project is discussed in an Activity Data Sheet (ADS), which corresponds to an Operable Unit (OU) for assessment and remediation, or to a specific functional area of the project in the case of Project Management and Technical Support.

2.0 Work Completed in This Quarter (December 1995 through February 1996):

2.1 ADS 1285 Technical Support
(Project Leader: Tony Roybal)

2.1.1 ER Site Tracking (ERST): (Task Leader: Denise Bleakly)

- ER Site Tracking Requests: To date ERST has received 60 requests for information. The majority of these requests were submitted by the Facilities Express Department 7311.
- Special Projects: Revision of the ER Project Environmental Assessment.

2.1.2 National Environmental Policy Act:

- The " Draft Environmental Assessment for the Environmental Restoration Project at Sandia National Laboratories/New Mexico" was submitted to the Department of Energy (DOE) on December 22, 1996. A final document is expected to be prepared and finalized no later than March 30, 1996.

2.1.3 Technology Applications Program: (Task Leader: Bob Knowlton)

- TAP members met with EPA in Dallas during December to discuss risk assessment assumptions, approaches, and the appropriateness of use of Sandia's PRECIS code for performing risk analyses. This summer, EPA had assembled a peer review panel to review the draft of the PRECIS reference report on the risk assessment methodology and algorithms employed in this code. Review comments were received, addressed in the document, and resolution of the comments was performed. Other topics discussed included the appropriateness of use of probabilistic methods for risk, and ecological risk concepts.
- TAP staff have been performing preliminary risk assessment calculations for essentially all waste sites. The sites which had field screening data collected this past summer were first on the list. The intent behind this work is to identify the sites which are most likely to become No Further Action (NFA) sites and which ones will need corrective action. All other sites, which exhibit significant

uncertainty as to the ultimate site disposition, will continue on with characterization activities. This work will supplement the prioritization activities. It will also help identify critical data needs to support the risk analyses in time for the Task Leaders to schedule into their baselines. Meetings began with the Task Leaders to relate the risk information to them. This information will also be useful in performing cost/benefit analyses of alternatives.

- TAP supported the ER Project in presenting Risk and Future Land Use concepts to the Future Land Use Committee of the Citizens Advisory Board.
- A beta version of the BOSS code for monitor well network design is undergoing testing on both the Macintosh and PC Windows platforms. A case study is under development of the Chemical Waste Landfill (CWL) site. The New Mexico Environmental Department (NMED) has been involved in oversite of the development and testing process for BOSS. Several other sites are being considered for analysis also. Documentation is in production.
- The OPTMAS code for spatial analysis of surface soil sampling plans is undergoing beta testing on the Macintosh. The PC version is now available for beta testing. Documentation is in production. The code is in use to analyze the nature of the lead contamination at Site 91.
- A prototype of the CURE code for quantifying uncertainty in cost estimates for ER activities is under evaluation.

2.1.4 Field Support: (Task Leader: Sharissa Young)

Support:

- Ground water monitoring at TA II, CWL, and Base-wide.
- Sitewide aquifer tests and regional hydrologic data collection.
- Monitoring well installation at TA II.
- Non-ER septic tank clean out.
- CWL pilot testing.
- Field support to 4 voluntary Corrective Measures (VCMs) (Surface Radiation, TA II Radioactive Waste Landfill planning, Site 86, and Lead Firing Site).

Perform:

- Non-regulated waste disposal and management activities for CWL, TA III/V, TA I, Scoping Sampling, Liquid Waste Disposal (LWDS), Septic Tanks and Drain Fields (ST&D), and TA II.
- Seepage removal and tank sampling of all contaminated (ER) septic tanks.
- General support and housekeeping at CWL, ST&D, ER Site 8, TA II and ER Site 71.
- Soil sampling at Hermes/TA V, Canyons Test Area, and TA V cistern.
- Ground water sampling at Sandia North, and TA V/LWDS.

General Activities:

- Provide Industrial Hygiene, Radiation Protection, and Safety Engineering support for all ER activities.
- Provide waste tracking, inspection, and assistance for all ER projects.

2.1.5 Chemistry Lab:

- Provided support for CWL treatability study "Tracer Test". Two on-site Gas Chromatographs (GCs) were installed to measure the fluorinated tracer compounds on-line. Results from this pilot test will aid in designing the VCM (ADS 1267, Site 74).
- Completed four laboratory operating procedures for on-site lab work. The documents included volatile organics by GC Mass Spectrometer (MS), microwave digestion, mercury and hexavalent chromium methods.
- Completed over 300 analyses for volatile organic compounds, metals, nitrate and petroleum hydrocarbons, supporting multiple field assessments.
- Reduced beryllium detection levels by Inductively Coupled Plasma (ICP). New low level is 1 parts per billion (ppb) in water.

- Added nitrate/nitrite determination to labs capabilities. Results from groundwater sampling indicated good agreement with off-site results.
- Installed ORACLE software and transferred sample management database to it. Sample results files will be transferred to the Environmental Restoration Data Management System starting in March 1996.

2.1.6 Hydrology Lab:

- Continued vadose zone moisture monitoring project at (CWL) in support of bio-venting pilot test for remediation strategy development. Subsurface soil moisture is monitored via nuclear soil moisture (neutron) probe deployed in a Poly-vinyl Chloride (PVC)-cased borehole. Vadose zone monitoring will be performed twice monthly for the duration of pilot testing.
- Continued surface soil moisture monitoring at Mixed Waste Landfill (MWL).
- Continued vadose zone moisture monitoring at MWL from the surface down to 100 feet below ground surface. Objective is to determine vertical extent of infiltration of precipitation and to observe seasonal changes in soil moisture content.
- Completed testing on 75% of the soil samples received from MWL drilling project. Remaining 25% of samples will be finished during the coming quarter.
- ER Hydrology lab personnel provided technical guidance to Corrective Action Management Unit (CAMU) contractor team concerning the vadose zone monitoring system design for the ER CAMU Temporary Unit (TU) project.
- Completed hydraulic testing on soil samples collected from Site Wide Hydrogeologic Characterization Project (SWHC), Tijeras Arroyo infiltration test site.
- Began performing engineering tests on surface soils from Surface Rad VCM work. The tests are required by the offsite disposal contractor as Waste Acceptance Criteria (WAC).

2.1.7 Geographic Information System (GIS) Program: (Task Leader: Dick Thomas)

Map Production (summarized by type of request from December 1, 1995-February 15, 1996):

Requests received:

Analysis	1
Database	37
GPS	6
Maps	414
Total Requests	458

Requests completed:

Analysis	2
Database	37
GPS	7
Maps	429
Total Requests	476

- ER Site Atlas: The atlas is ready to be published; we are making final revisions to summaries and maps.
- Groundwater Modeling: GIS continues to support the GW modeling project by assisting in GIS input and output of data and in running the model.
- Sitewide Geology mapping project: this project is completed.
- Metadata: We are continuing to create metadata on new coverages in compliance with executive order 12906.

Database:

Development:

- Upgraded ORACLE Relational Database Management System (RDBMS) to Distributed Option and Parallel Query.
- Re-developed water level tables for site-wide water level project.
- Developing water level data entry system.
- Successfully established a real time transparent link to the Sample Management Office (SMO).
- Routine data base support.
- Routine data maintenance.
- Routine user support.

Production:

- 525,249 analytical data records in the Environmental Restoration Data Base Management System (ERDBMS).
- 2,741 containers in container tracking system.
- 26 users enrolled into ERDBMS.
- Produced over 50 separate reports for users.
- Loaded approximately 20,000 analytical sample records.

Global Positioning System (GPS):

- GPS continues to be used to locate sample sites, archaeology points, well locations, and more.

2.1.8 Records Center (Project Leader: Kay Schardein)

- Provided full-time staff at ER records facility.
- Processed 1097 records.
- Completed 69 customer service requests.
- Working on 4 customer outreach projects.
- Completed 3 file guide update.
- Imaging pilot:
  - developing plan for ER controlled documents as pilot
  - testing two scanners, jukebox & software
- Developed plan to start tracking customer requests on-line.
- Classified records in TA II:
  - ordered record classified spacesaver
  - initiated contact with network for access to process records on-site
  - requested assistance from corporate records
- Supporting database integration project for Site Tracking.

2.2 ADS 1289 Mixed Waste Landfill (MWL)
(Project Leader: Jerry Peace)

- The MWL team continued production of the MWL Phase 2 Resource Conservation and Recovery Act Facility Investigation (RFI) Report, due for submittal September 1996.
- Semi-annual sampling of MWL groundwater monitoring wells continued.
- MWL Phase 2 RFI data indicate that tritium is indeed the only contaminant of concern at the landfill. Review of Volatile Organic Compound (VOC), Semi-Volatile Organic Compound (SVOC), metals, radionuclides, and ion-chemistry data has been completed. No other contaminants were identified.
- Risk assessment has been completed.
- October sampling of MWL groundwater monitoring wells indicates, once again, no contamination in groundwater. Sampling will occur again in April.

2.3 ADS 1292 SNL/NM Engineering Reactor, Surveillance and Maintenance
(Project Leader: David Miller)

- Three field operating procedures (FOPs) were prepared and finalized under this ADS. These FOPs were specific to building sampling and characterization of building materials for waste purposes.

2.4 ADS 1295 Septic Tanks and Drainfields Assessment (ST&D)
(Project Leader: Bob Galloway)

- Review and analysis of soil sampling data has been completed.
- Work continues on preparing No Further Action (NFA) proposals based on soil sampling for the ADS 1295 sites.
- Fieldwork for septage waste removal and concrete sampling in ADS 1295 and ADS 1303 to decommission the septic tanks is completed.
- A Decision Report to the EPA NMED summarizing the status of the assessment of ADS 1295 sites is nearly complete, pending the addition of new background data figures.

2.5 ADS 1300 Leaking Underground Storage Tank (LUST) Assessment and Remediation
ADS 1300 has been administratively closed.

2.6 ADS 1302 Technical Area (TA) I Assessment
(Project Leader: David Miller)

- Evaluation and reporting of the data collected during the near surface soil investigation (0 to 30 ft depth) is continued.
- A VCM at portions of ER Sites #187 (Sanitary Sewer System) and #226 (Acid Waste Line) was documented in a VCM Report.
- Coordinated with Facilities personnel on several proposed and ongoing construction projects. This coordination is performed to ensure construction activities do not impact potentially contaminate soils at ER sites within TA I.
- TA I staff contributed to a Groundwater Investigation Plan (GIP) to address Trichlorethelene (TCE) contamination identified in the vicinity of TA I and TA II.

2.7 ADS 1303 Technical Area (TA) II Remediation
(Project Leader: Rarilee Conway)

- Environmental Protection Agency (EPA) National Emission Standards for Hazardous Air Pollutants (NESHAP) approval was received for landfill VCM (ER Site 1)
- VCM start date is pending NEPA approval and City of Albuquerque air permit
- TCE was identified in several monitor wells within and surrounding TA II. TA II staff contributed to a GIP to address this contamination

2.8 ADS 1326 Project Management
(Project Leader: Warren Cox)

- The ER Project scope, cost and schedule have been substantially revised. This major revision resulted in a reduction in project schedule of six years (project completion now at the end of fiscal year 2000), and a reduction in total cost of approximately $100 million. Project elements which

were substantially revised were: work logic (fully incorporating EPA approved "one-pass" approach"); approach to waste management (waste volumes, costs, establishment of a Temporary Unit (TU) and Corrective Action Management Unit); greater use of Voluntary Corrective Measures (VCM); and use of a site-wide OMS modeled after EPA Superfund Accelerated Cleanup Model (SACRM) and "plug-in" approach to remedy selection.

2.9 ADS 1306 Technical Area III and V Assessment
(Project Leader: Lon Dawson)

- The draft TA-III &V RFI Report was completed and submitted for internal review in January.

TA-V Groundwater Contamination:

- The investigation data summary was submitted to the EPA and the NMED.
- Plans were completed for the KAFB-10 plugging and abandonment. This activity is necessary to protect groundwater.
- All area wells were sampled.
- A bio-feasibility study was conducted at Site 36 (HERMES) to examine the potential for bioremediation if required by the site risk assessment.

2.10 ADS 1307 Liquid Waste Disposal System (LWDS) Assessment
(Project Leader: Lon Dawson)

- The LWDS RFI Report was submitted to the EPA in September 1995. EPA comments were received in February 1996. Draft responses are being prepared.

2.11 ADS 1309 Tijeras Arroyo Assessment
(Project Leader: Sue Collins)

- Completed response package to draft regulator Notice of Deficiency (NOD) comments on NFAs submitted in FY95 (now in internal review).
- Completed draft NFA proposal for Site 232.
- Received data for Site 45 confirmatory sampling and assessment of geophysical anomalies at Site 45.
- Performed confirmatory sampling at Site 16 and received data.
- Contributed to the new GIP to address TCE contamination identified in the vicinity of TA I and TA II.

2.12 ADS 1330 Site-Wide Hydrogeologic Characterization (SWHC)
(Project Leader: Sue Collins)

- Completed Geology Subtask and incorporated results into Annual Report.
- Completed Surface Water subtask and incorporated results into Annual Report.
- Completed field portion of Vadose Zone subtask.
- Upgraded SNL Kirtland Air Force Base (KAFB) base-wide computer model with latest Albuquerque basin model from the United States Geologic Survey (USGS).
- Started work on computer model of MWL groundwater.
- Performed monthly ground water level measurements in the SWHC wells (manually).
- Instrumented several SNL and KAFB wells to monitor groundwater level fluctuations more closely.
- Completed draft of Background Study report and started final internal review.
- Provided consultation and incorporated SWHC descriptions into new Groundwater Investigation Plan to address TCE contamination identified in the vicinity of TA I and TA II.

- Completed NEPA for plugging and abandoning well KAFB-10.
- Completed final review of Annual Report (EPA deliverable due April 1, 1996).

2.13 ADS 1332 Foothills Test Area
(Project Leader: Caroline Byrd)

- A VCM to remove contaminated shrapnel and soils that were detected during the previous surveys is now complete. Four sites in this ADS had radioactive anomalies removed.
- Additional surveying and cleanup was conducted at site 87 since the site had previously been surveyed at approximately 70% coverage.
- The RFI Workplan NOD response was completed Agreement-in-Principle (AIP) comments have been reviewed, although we have not received official New Mexico Environment Department (NMED) comments.
- Scoping sampling data for some of the sites proposed for No Further Action has been received, is being validated, and will be included in the NFA proposals.
- Debris (mainly wood and metal scrap) was removed from site 8/58 as a part of the site preparation before the commencement of the RFI sampling. Preparations for the RFI sampling of sites 8, 58, and 87 have begun; sampling scheduled to begin March 1996.

2.14 ADS 1333 Canyons Test Area
(Project Leader: Carole Lojek)

- Prepared and submitted responses for the OU 1333 RFI Work Plan NOD response was completed.
- Sites 72 & 93A, B, C NFA were completed.
- Continued planning activities for the Site 10 Phase 2 Rad VCM, and RFI sampling.

2.15 ADS 1334 Central Coyote Test Area
(Project Leader: Carole Lojek)

- Continued miscellaneous planning activities for the Site 11 VCM. Submitted Temporary Authorization request to DOE/EPA and completed draft Health and Safety Plan (HASP) and VCM Plan. Implementation of the Site 11 VCM is pending NEPA approval.
- Prepared and submitted responses for the RFI Work Plan NOD and the Site 22 NFA Proposal.
- Continued planning activities for the Site 71 Rad VCM extension.
- Continued preparing a draft Confirmatory NFA Proposal for Site 22.

2.16 ADS 1335 Southwest Teat Area
(Project Leader: Caroline Byrd)

- A VCM to remove contaminated shrapnel and soils that were detected during the previous survey is now 100% complete. Additional scope added to the project was conducted to allow removal of large area source anomalies from 6 sites in this ADS. These area sources have been removed. A new 20 acre area at Site 85 is being added to the scope of work. The area will be surveyed based on new site background information gained from a recent interview.
- The draft RFI workplan is through internal review and will be sent to the EPA in March , 1996. A video detailing the features of the 1335 sites is nearly complete and will be sent to assist in the review process.
- No Further Action (NFA) proposals are being written for sites #6, #7, #54, #56, #86, #89, #108, #115, #191, and #193. The proposals will include data from a scoping sampling effort that has been received this quarter.

2.17 ADS 1345 Corrective Action Management Unit (CAMU), Temporary Unit (TU)
(Project Leader: Rarilee Conway)

- Submitted Class II permit modification request to designate TU at ER Site 107.
- Completed options analysis and evaluation; decision was to pursue CAMU for storage, treatment, and on-site disposal.
- TU construction start date pending NEPA approval.
- Awarded contract for design and permitting of CAMU.

3.0 Estimate of the percentage of work completed:
See Attachment A.

Summaries of all findings:
See discussions under each ADS.

4.0 Summaries of all Problems or Potential Problems:

- Low levels of TCE contamination have been discovered in some monitor wells north of Tijeras Arroyo, and in some KAFB monitoring wells. A Groundwater Investigation Plan is being developed in cooperation with the KAFB IRP program.
- Acceleration of the ER Project, to completion by the end of fiscal year 2000, will require a reduction in regulatory review periods. We are discussing the methods of achieving that reduction with the appropriate regulatory agencies.

5.0 Projected Work for the Next Quarter:

- Work will continue on those tasks not completed, as identified in Attachment A.

6.0 Summaries of contacts pertaining to corrective action:

December 1995:

- ALBUQUERQUE JOURNAL, December 12, 1995 Sandia has found traces of TCE, a potentially cancer-causing solvent, in ground water a half mile from drinking water wells on Kirtland Air Force Base. Sandia's Tom Blejwas is quoted as saying the cause of the contamination has not been determined, but work with the City, State, and Air Force is under way to find and remediate the problem.

January 1996:

- January 14, 1996 About 30 citizens, contractors, DOE officials, and regulators attended a Sandia public meeting on the Labs' proposal to establish a Temporary Unit. The meeting was held at the University of New Mexico's Continuing Education Center and included a brief presentation and posters on the proposal. Nine official responses were received on the proposal.

- January 17, 1996 The Citizens' Advisory Board adopted formal by-laws at its monthly meeting and moved forward on establishing an annual budget for the board. The board also heard an update on future land use and received a report on a survey of the board, conducted by Sandia.

Attachment 1

(continued)

Sandia National Laboratories

Environmental Restoration Projects

Milestone Chart As Of February 29, 1996

(Recent Accomplishments and Milestones For Period September 1995 - February 1996)

OPERABLE UNIT / MILESTONES-ACCOMPLISHMENTS	Percent Complete	Planned Completion
LIQUID WASTE DISPOSAL SYSTEMS - ADS 1307		
Complete RFI Workplan	100%	30-Sep-93
Complete RFI Field Work	100%	10-Feb-95
Complete RFI Report	100%	30-Sep-95
TIJERAS ARROYO - ADS 1309		
NFA Proposals - 13 Sites	100%	30-Jul-95
FOOTHILLS TEST AREA - ADS 1332		
VCM - Sandia Rad Removal	100%	31-Aug-95
Recon Sampling Program	100%	31-Aug-95
NFAs Submitted To EPA - Sites 15, 27, 28, 67	100%	21-Sep-95
RFI Workplan: Response To EPA NOD Comments	100%	29-Feb-96
CANYONS TEST AREA - ADS 1333		
Complete RFI Workplan	100%	30-Sep-95
NFA Proposals Sites 59, 63a, 63b, 64, 92	100%	21-Sep-95
NFA Proposals Sites 72, 93a, 93b, 93c	100%	28-Aug-95
Site 225 Delisted Per Class 3 Permit Mod.	100%	30-Sep-95
CENTRAL COYOTE TEST AREA - ADS 1334		
Complete RFI Workplan	100%	1-Oct-94
NFA Proposals Sites 20, 21, 47, 62, 69, 71, 88a	100%	12-May-95
NFA Proposal For Site 22 Completed	100%	28-Aug-95
VCM - Remove Batteries Site, 47/57B	100%	18-Apr-95
VCM - Remove Test Stand, Site 68	100%	20-Dec-95
VCM - Remove Non Haz Waste, Site 21/22	100%	31-Aug-95
NFAs Accepted Sites 20, 47, 62, 69, 88a	100%	12-May-95
Site 61b Transferred To KAFB Thru Class 3 Permit Mod	100%	30-Sep-95

Attachment 1

(continued)

Sandia National Laboratories

Environmental Restoration Projects

Milestone Chart As Of February 29, 1996

(Recent Accomplishments and Milestones For Period September 1995 - February 1996)

OPERABLE UNIT / MILESTONES-ACCOMPLISHMENTS	Percent Complete	Planned Completion
SOUTHWEST TEST AREA - ADS 1335		
VCM - Rad Removal	100%	29-Sep-95
VCM - Gas Cylinder Removal, Site 6A	100%	30-Jun-95
NFA Proposal, Sites 39, 53, 194	100%	15-Nov-95
Recon Sampling Program	100%	29-Sep-95
Response to EPA NFA Comments, Sites 39, 53	100%	29-Feb-96
RFI Workplan To EPA	90%	31-Mar-96
SANDIA N GW ASSESSMENT - ADS 1303		
Ground Water Investigation Plan To NMED	40%	29-Mar-96
TECH AREA V GW - Subsequent Investigations - ADS 1266		
Investigation Data Summary And Transmitted Same To EPA And NMED	100%	31-Oct-95
OFF-SITE AREAS - ADS 1337		
Completed 12 Weapons Storage Areas And Miscellaneous Off-Site Program Reports	100%	10-Feb-96